

9-9 Tactical Trucks

ITEM: M1114, M1145 and M1116 Up-Armored HMMWV's

SUBJECT: IED Aluminum Body Overlay Installation

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COMMENTS: A procedure has been developed to install improvised explosive device (IED) aluminum overlay armor on the Up-Armored M1114, M1145 and M1116.

MATERIALS/PARTS:

NSN (PART NUMBER)	NOMENCLATURE	QTY
6433312	KIT, IED ALUMINUM OVERLAY	1
Consisting of		
6432864	IED ALUMINUM OVERLAY - ROCKER PANEL RIGHT	1
6432865	IED ALUMINUM OVERLAY - ROCKER PANEL LEFT	1
6432866	IED ALUMINUM OVERLAY - A PILLAR, RH LOWER	1
6432867	IED ALUMINUM OVERLAY - A PILLAR, LH	1
6432868	IED ALUMINUM OVERLAY - A PILLAR, RH UPPER	1
6432869	IED ALUMINUM OVERLAY - COVER BREATHER	1
6432872	IED ALUMINUM OVERLAY - HEADER FRONT DOOR	2
6432874	IED ALUMINUM OVERLAY - B PILLAR	2
6432875	IED ALUMINUM OVERLAY - HEADER REAR DOOR	2
6432889	IED ALUMINUM OVERLAY - C-PILLAR, LH LOWER	1
6432894	IED ALUMINUM OVERLAY - FUEL DOOR	1
6432911	IED ALUMINUM OVERLAY - C PILLAR, UPPER	2
6432915	PLATE, SUPPORT - HEADERS	2
6432924	FUEL DOOR ASSEMBLY	1
6433499	BRACKET, MIRROR MTG-LOWER LEFT SIDE	1
6433313	KIT, HARDWARE - IED ALUMINUM OVERLAY	1
Consisting of		
5306-01-430-7399 (4397000-006)	SCREW, HEX HD CAP .250-20 X 0.75	3
4397000-010	SCREW, HEX HD CAP .250-20 X 1.25	1
5306-01-420-6635 (4397000-012)	SCREW, HEX HD CAP .250-20 X 1.50	1
5306-01-433-9185 (4397000-013)	SCREW, HEX HD CAP .250-20 X 1.75	10
5306-01-433-9186 (4397000-014)	SCREW, HEX HD CAP .250-20 X 2.00	4
5306-01-433-9187 (4397000-017)	SCREW, HEX HD CAP .250-20 X 2.75	19
4397000-032	SCREW, HEX HD CAP .312-18 X .75	9
5306-01-433-9183 (4397000-036)	SCREW, HEX HD CAP .312-18 X 1.25	2
5306-01-433-9213 (4397000-038)	SCREW, HEX HD CAP .312-18 X 1.50	4
5305-01-428-2938 (4397000-040)	SCREW, HEX HD CAP .312-18 X 2.00	2
4397000-041	SCREW, HEX HD CAP .312-18 X 2.25	2

NSN (PART NUMBER)	NOMENCLATURE	QTY
5306-01-433-9198 (4397000-065)	SCREW, HEX HD CAP .375-16 X 1.75	4
5306-01-448-5073 (4397000-066)	SCREW, HEX HD CAP .375-16 X 2.00	12
5305-01-436-6376 (4397000-067)	SCREW, HEX HD CAP .375-16 X 2.25	1
4397000-069	SCREW, HEX HD CAP .375-16 X 2.75	1
5305-01-475-0361 (4397000-074)	SCREW, HEX HD CAP .375-16 X 4.00	6
4397001-059	SCREW, HEX HD CAP .375-24 X .88	3
5310-01-435-7784 (4397005-010)	WASHER, FLAT .250 SAE	52
5340-01-417-8995 (4397005-011)	WASHER, FLAT .250 USS	2
5310-01-422-9287 (4397005-012)	WASHER, FLAT .312 SAE	16
5310-01-419-2413 (4397005-014)	WASHER, FLAT .375 SAE	18
5310-01-436-3742 (4397005-015)	WASHER, FLAT .375 USS	4
5310-01-435-7791 (4397005-075)	WASHER, FLAT WIDE .375 TYPE B	2
5310-01-439-8173 (4397064-001)	NUT, HEX LOCKING .250-20	27
5310-01-439-8172 (4397064-003)	NUT, HEX LOCKING .313-18	7
5310-01-439-8177 (4397064-005)	NUT, HEX LOCKING .375-16	14
5310-01-439-8181 (4397083-001)	WASHER, FLAT ALUMINUM	14
Materials needed (but not included in kit):		
8030-01-025-1692	SEALING COMPOUND, THREAD LOCKING, MIL-S-4616163, TYPE 2, GRADE N	A/R

PROCEDURES:

A. Install left side IED aluminum overlay as follows.

1. Park vehicle on level surface and apply vehicle parking brake (TM 9-2320-387-10).
2. Remove screws (1, 2 and 3) and nut (4) to temporarily remove left side mirror assembly and lower mounting bracket. Discard used attaching hardware. See figure 1.
3. Remove Screw (1) and nut (2) securing original mirror mounting bracket to left side mirror assembly. Discard used fasteners and original mirror mounting bracket. Install 6433499 lower left side mounting bracket (4) on left side mirror assembly securing with 4397000-032 capscREW (3) and 4397064-003 locking nut (5). See figure 2. Do not tighten capscREW (3) at this time. Set assembled parts aside for re-installation in steps A.33. through A.35..
4. Temporarily remove fire extinguisher from along side of drivers seat.
5. Remove two screws (1), two washers (4), two nuts (3) and three screws (2) securing gap plate to vehicle. See figure 3. Discard screws (1 and 2) and retain gap plate for re-installation.

NOTE

Identify if any MWO (Modification Work Order) stickers have been applied in the lower B-pillar area. These need to be removed and retained for re-application after the overlay is installed.

6. Remove six screws (2), nuts (4), washers (3), and one screw (1) from left side rocker locations shown in figure 4. Discard used fasteners.
7. Apply sealing compound to one 4397000-013 capscrew (2). See figure 5.
8. Install 6432865 left rocker panel overlay (5) securing with six 4397000-017 capscrews (3), twelve 4397005-010 flat washers (4), six 4397064-001 locking nuts (6), one 4397000-013 capscrew (2) and one 4397005-010 flat washer (1) as shown in figure 5. Do not tighten capscrews (3 and 2) at this time.
9. Remove five screws (1), five nuts (4), one screw (2) and one nut (3) from the left side A-pillar locations shown in figure 6. Discard used fasteners.
10. Install 6432867 left side A-pillar overlay (5) securing with five 4397000-066 capscrews (1), five 4397005-014 flat washers (2), five 4397064-005 locking nuts (7), one 4397000-067 capscrew (3), one 4397005-014 flat washer (4) and one 4397064-005 locking nut (6) as shown in figure 7. Do not tighten capscrews (1 and 3) at this time.
11. Apply sealing compound to three 4397000-074 capscrews (2). See figure 8.
12. Re-install gap plate to A-pillar overlay and rocker panel overlay securing with three 4397000-074 capscrews (2), two 4397000-017 capscrews (1), two 4397005-010 flat washers (3) and two 4397064-001 locking nuts (4). See figure 8. Torque three capscrews (2) to 23 lb-ft. (31 N·m) and two capscrews (1) to 10 lb-ft. (14 N·m).
13. Tighten left rocker panel overlay and left A-pillar hardware as follows. Torque six capscrews (3) to 10 lb-ft. (14 N·m) and capscrew (2) to 6 lb-ft. (8 N·m) per figure 5. Torque five capscrews (1) and one capscrew (3) to 37 lb-ft. (50 N·m) per figure 7.
14. Remove two screws (3), two washers (2), two nuts (1), one screw (4), one washer (8), one nut (9), one screw (5), washer (6) and nut (7) from the B-pillar locations shown in figure 9. Discard used fasteners.

NOTE

Use alignment tool for the top two holes when installing B-pillar overlay in the following step.

15. Install 6432874 B-pillar overlay (5) to vehicle securing with one 4397000-041 capscrew (2), one 4397005-012 flat washer (1), one 4397005-075 flat washer (8), one 4397064-003 locking nut (7), one 4397000-040 capscrew (3), two 4397005-012 flat washers (4) and

one 4397064-003 locking nut (6) as shown in figure 10. Torque one capscrew (2) and one capscrew (3) to 21 lb-ft. (28 N·m).

16. Temporarily remove two screws (1) and C-pillar inner gap strip (2) as shown in figure 11 to gain better access to upper C-pillar fasteners. Retain screws (1) and C-pillar inner gap strip (2) for re-installation.
17. Remove one screw (6), one screw (8), two washers (7), two screws (3), two washers (4), two nuts (5) and one screw (2) at locations shown in figure 12. Discard used fasteners.
18. Apply sealing compound to four 4397000-032 capscrews (2). See figure 13.
19. Pre-assemble 6432872 front door header (5) and 6432875 rear door header (1) to 6432915 headers support plate (4) securing with four 4397000-032 capscrews (2) and four 4397005-012 flat washers (3) as shown in figure 13. Do not tighten four capscrews (2) at this time.
20. Temporarily install pre-assembled header parts to vehicle securing with two 4397000-065 capscrews (4), two 4397005-015 flat washers (5), one 4397000-013 capscrew (2), one 4397005-011 flat washer (1) and retaining tube held from step A-17. See figure 14. Temporarily insert two 4397000-013 capscrews (3) for alignment without washers and locking nuts.
21. With pre-assembled header parts temporarily secured, push upward on headers support plate (3) to ensure proper door seal clearance and firmly hand tighten four capscrews (2) shown in figure 13.
22. Carefully remove pre-assembled header parts and retain fasteners.
23. Torque four capscrews (2) from step A-19 to 21 lb-ft. (28 N·m). See figure 13.
24. Apply sealing compound to one 4397000-013 capscrew (2) and two 4397000-065 capscrews (4). See figure 14.
25. Re-install pre-assembled header parts to vehicle securing with two 4397000-065 capscrews (4), two 4397005-015 flat washers (5), two 4397000-013 capscrews (3), two 4397005-010 flat washers (7), two 4397064-001 locking nuts (6), one 4397000-013 capscrew (2) and one 4397005-011 flat washer (1). See figure 14. Torque two capscrews (4) to 23 lb-ft. (31 N·m). Torque two capscrew (3) and one capscrew (2) to 6 lb-ft. (8 N·m).

NOTE

Steps A.26. and A.27. are vehicle specific. For M1114 and M1145 vehicles use step A.26. For M1116 vehicles use step A.27.

26. Install 6432911 upper C-pillar overlay (1) to left side of M1114 or M1145 vehicle securing with two 4397000-014 capscrews (3), four 4397005-010 flat washers (2) and two 4397064-001 locking nuts (7) as shown in figure 16. Torque two capscrews (3) to 10 lb-ft. (13 N·m).
27. Install 6432911 upper C-pillar overlay (1) to left side of M1116 vehicle securing with two 4397000-066 capscrews (9), four 4397005-014 flat washers (8) and two 4397064-005 locking nuts (10) as shown in figure 16. Torque two capscrews (9) to 37 lb-ft. (50 N·m).
28. Apply sealing compound to two screws (1) retained from step A-16.
29. Re-install C-pillar inner gap strip (2) and two screws (1) retained from step A-16. See figure 11. Torque capscrews (1) to 6 lb-ft. (8 N·m).
30. Remove two screws (1) from lower left side C-pillar area as shown in figure 15. Discard used fasteners.
31. Apply sealing compound to two 4397000-013 capscrews (4). See figure 16.
32. Install 6432889 lower left C-pillar overlay (6) to vehicle securing with two 4397000-013 capscrews (4) and two 4397005-010 flat washers (5) as shown in figure 16. Torque two capscrews (3) to 6 lb-ft. (8 N·m).
33. Apply sealing compound to one 4397000-038 capscrew (2) and one 4397000-010 capscrew (3). See figure 17.
34. Re-install mirror assembly with lower mounting bracket onto vehicle securing with one 4397000-038 capscrew (1), four 4397083-001 flat washers (6), one 4397064-003 locking nut (5), one 4397000-038 capscrew (2), one 4397000-010 capscrew (3) and one 4397005-010 flat washer (4) as shown in figure 17. Torque capscrew (1) to 21 lb-ft. (28 N·m), capscrew (2) to 13 lb-ft. (18 N·m) and capscrew (3) to 6 lb-ft. (8 N·m).
35. Torque capscrew (3) from step A.3. to 21 lb-ft. (28 N·m). See figure 2.
36. Re-install fire extinguisher removed in step A.4..

B. Install right side IED aluminum overlay as follows.

1. Temporarily remove passenger front seat. (TM 9-2320-387-24-2, para. 2-17).
2. Remove screws (3 and 2) and nut (1) to temporarily remove right side mirror assembly as shown in figure 18. Discard attaching fasteners and retain right side mirror assembly for later re-installation in steps B.16. and B.17..
3. Repeat steps A.5. and A.14. thru A.25. on right side of vehicle.

4. Remove nine screws (3), nuts (2), washers (1), and one screw (4) from right side rocker locations shown in figure 19. Discard used fasteners.
5. Apply sealing compound to one 4397000-014 capscrew (4). See figure 20.
6. Install 6432864 right side rocker panel overlay (6) securing with nine 4397000-017 capscrews (3), eighteen 4397005-010 flat washers (1), nine 4397064-001 locking nuts (2), one 4397000-013 capscrew (4) and one 4397005-010 flat washer (5) as shown in figure 20. Do not tighten capscrews (3) and capscrew (4) at this time.
7. Remove one screw (1), four screws (3) and four nuts (2) from the right side A-pillar locations shown in figure 21. Discard used fasteners.
8. Apply sealing compound to one 4397000-012 capscrew (12). See figure 22.
9. Install 6432868 upper A-pillar overlay (14) to right side of vehicle securing with one 4397000-012 capscrew (12) and 4397005-010 flat washer (13). See figure 22. Do not tighten capscrew (12) at this time.
10. Install 6432866 lower A-pillar overlay (3) to right side of vehicle securing with three 4397000-066 capscrews (5), three 4397005-014 flat washers (4) and three 4397064-005 locking nuts (2) as shown in figure 22. Do not tighten capscrews (5) at this time.
11. Apply sealing compound to two 4397000-036 capscrews (12). See figure 22.
12. Install 6432869-01 breather cover overlay (7) onto 6432868 upper A-pillar overlay (14) and 6432866 lower A-pillar overlay (3) securing with two 4397000-036 capscrews (11), two 4397005-012 flat washers (10), one 4397000-069 capscrew (8) one 4397005-014 flat washer (9) and one 4397064-005 locking nut (1). Use six 4397083-001 flat washers (6) as spacers. See figure 22. Torque two capscrews (11) to 21 lb-ft. (28 N·m) and one capscrew (8) to 37 lb-ft. (50 N·m).
13. Torque capscrew (12) to 6 lb-ft. (8 N·m) per figure 22.
14. Repeat steps A-11 and A-12 to right side of vehicle.
15. Torque nine capscrews (3) to 10 lb-ft. (13 N·m) and one capscrew (4) to 6 lb-ft. (8 N·m) per figure 20. Torque three capscrews (5) to 37 lb-ft. (50 N·m) per figure 22.
16. Apply sealing compound to one 4397000-038 capscrews (2). See figure 23.
17. Re-install right side mirror assembly securing with one 4397000-038 capscrew (3), four 4397083-001 flat washers (4), one 4397064-003 locking nut (1) and one 4397000-038 capscrew (2) as shown in figure 23. Torque capscrew (3) to 21 lb-ft. (28 N·m) and capscrew (2) to 13 lb-ft. (17 N·m).

NOTE

Steps B.18. and B.19. are vehicle specific. For M1114 and M1145 vehicles use step B.18. For M1116 vehicles use step B.19.

18. Install 6432911 upper C-pillar overlay (4) onto right side of M1114 or M1145 vehicle securing with two 4397000-014 capscrews (3), four 4397005-010 flat washers (2) and two 4397064-001 locking nuts (1) as shown in figure 24. Torque two capscrews (3) to 10 lb-ft. (14 N·m).
19. Install 6432911 upper C-pillar overlay (4) onto right side of M1116 vehicle securing with two 4397000-066 capscrews (7), four 4397005-014 flat washers (6) and two 4397064-005 locking nuts (5) as shown in figure 24. Torque two capscrews (7) to 37 lb-ft. (50 N·m).
20. Remove original fuel door assembly and shim by removing three screws (1) and nutplate as shown in figure 25. Note orientation of shim for re-installation. Discard fuel door and screws (1). Retain nutplate and shim for re-installation.
21. Apply sealing compound to three 4397001-059 capscrews (1). See figure 26.
22. Install 6432924 fuel door assembly (3) and shim securing with three 4397001-059 capscrews (1) and nutplate as shown in figure 26. Torque three capscrews (1) to 23 lb-ft. (31 N·m).
23. Apply sealing compound to three 4397000-006 capscrews (2). See figure 26.
24. Install 6432894 fuel door overlay (4) onto 6432924 fuel door assembly (3) securing with three 4397000-006 capscrews (2) as shown in figure 26. Torque three capscrews (2) to 10 lb-ft. (14 N·m).
25. Re-install passenger front seat. (TM 9-2320-387-24-2, para. 2-17).

NOTE

Due to variation in field vehicles, minor modification of overlay parts may be necessary to ensure proper fit.

LEVEL OF MAINTANANCE: units

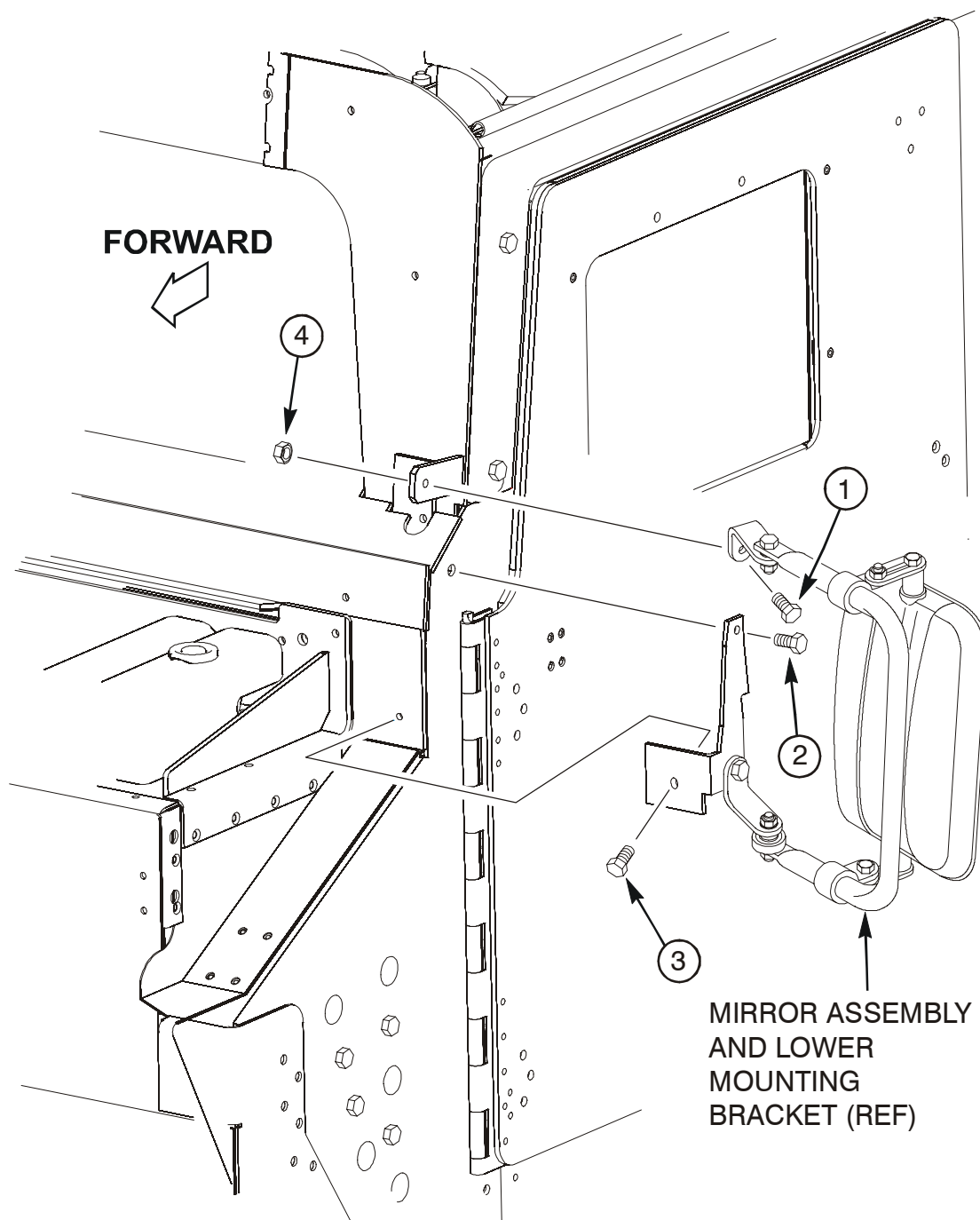


Figure 1.

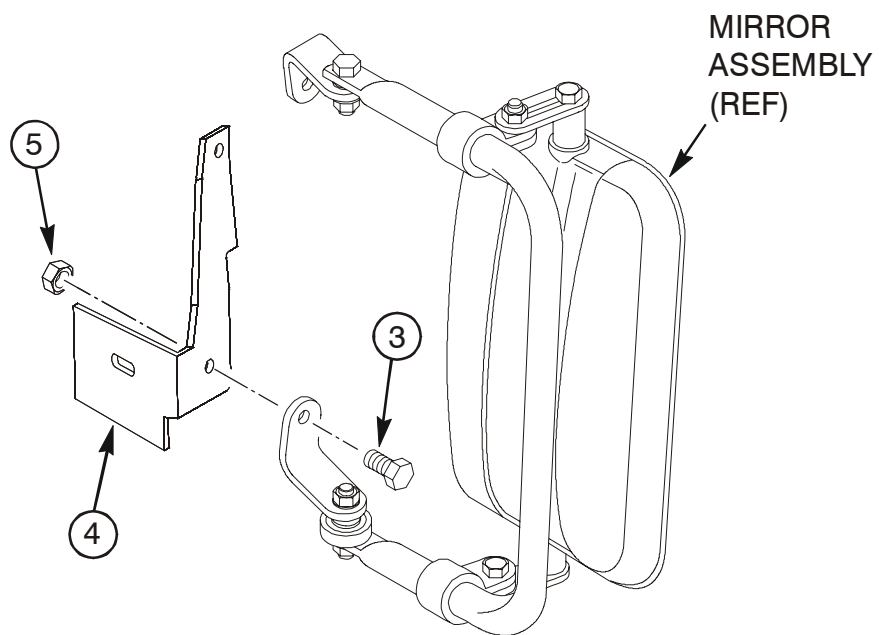
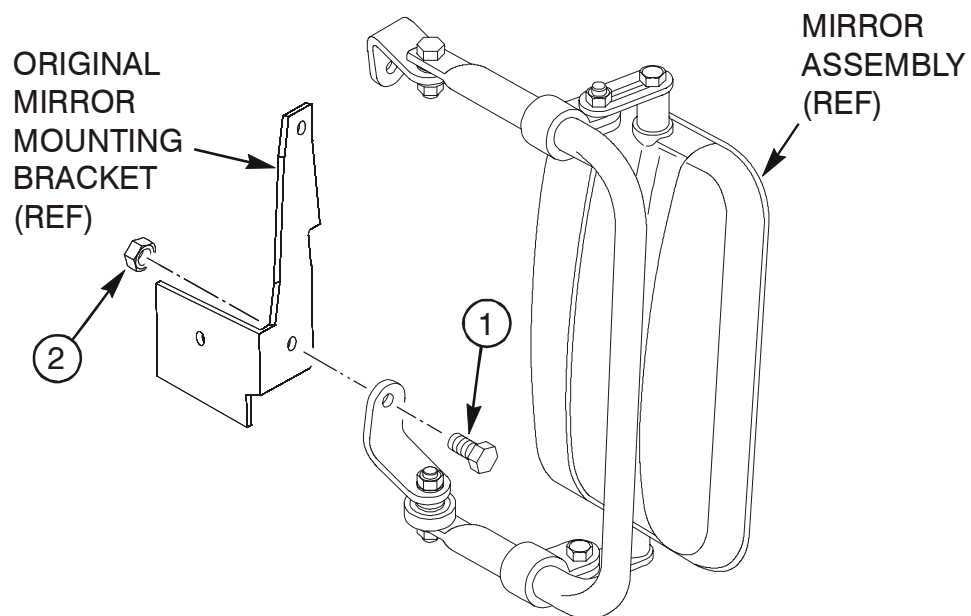


Figure 2.

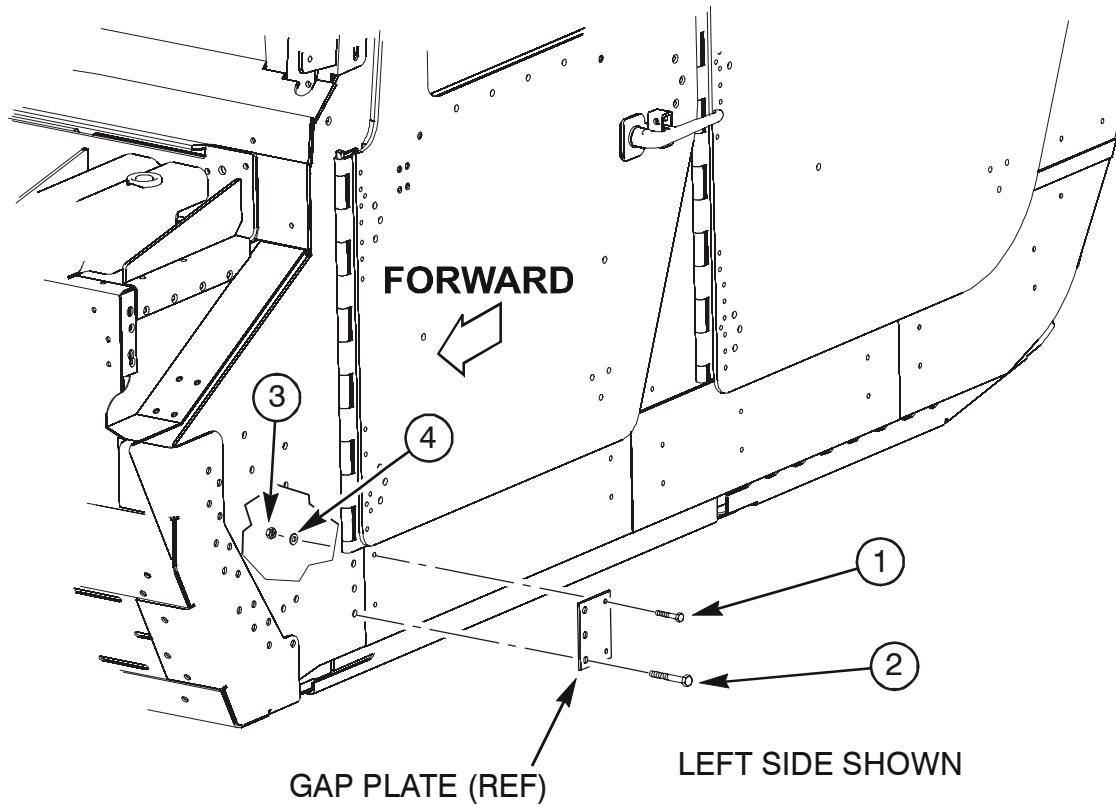


Figure 3.

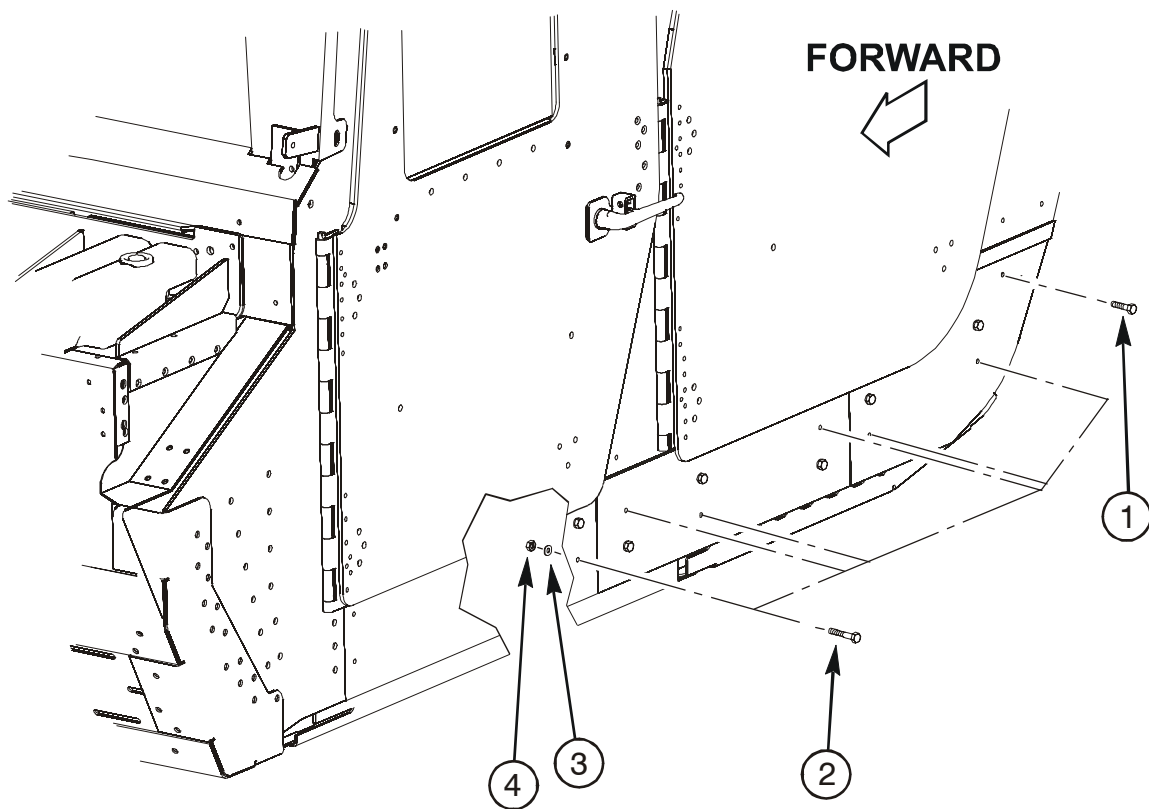


Figure 4.

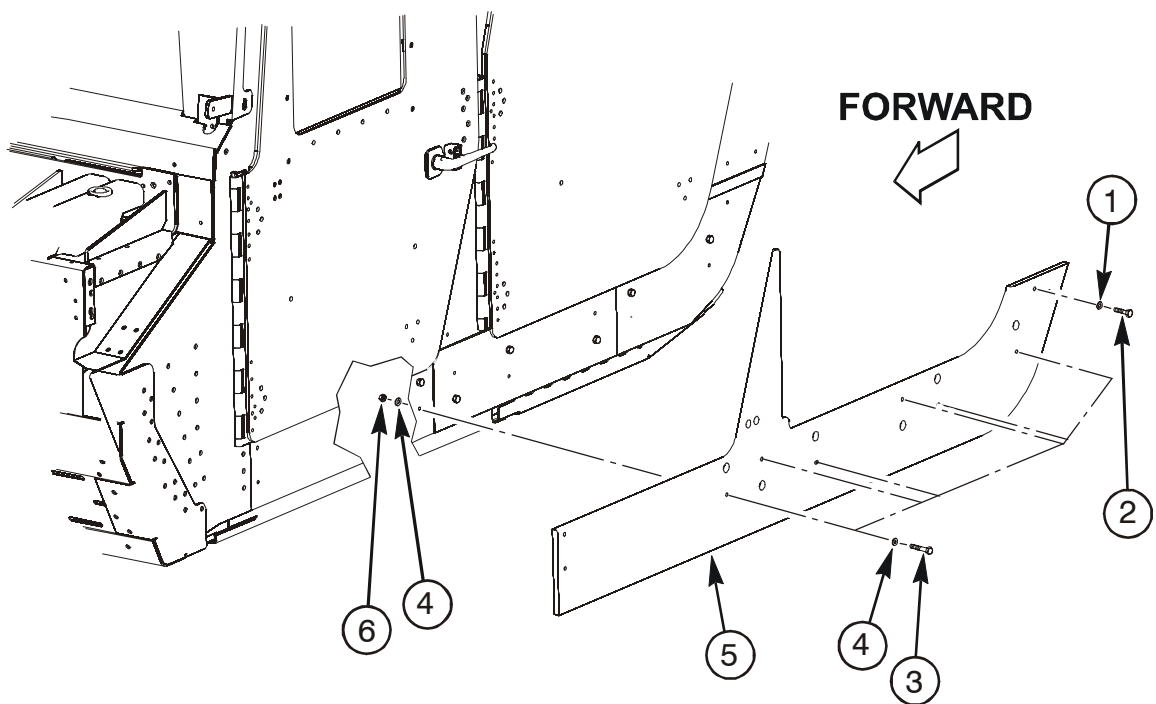


Figure 5.

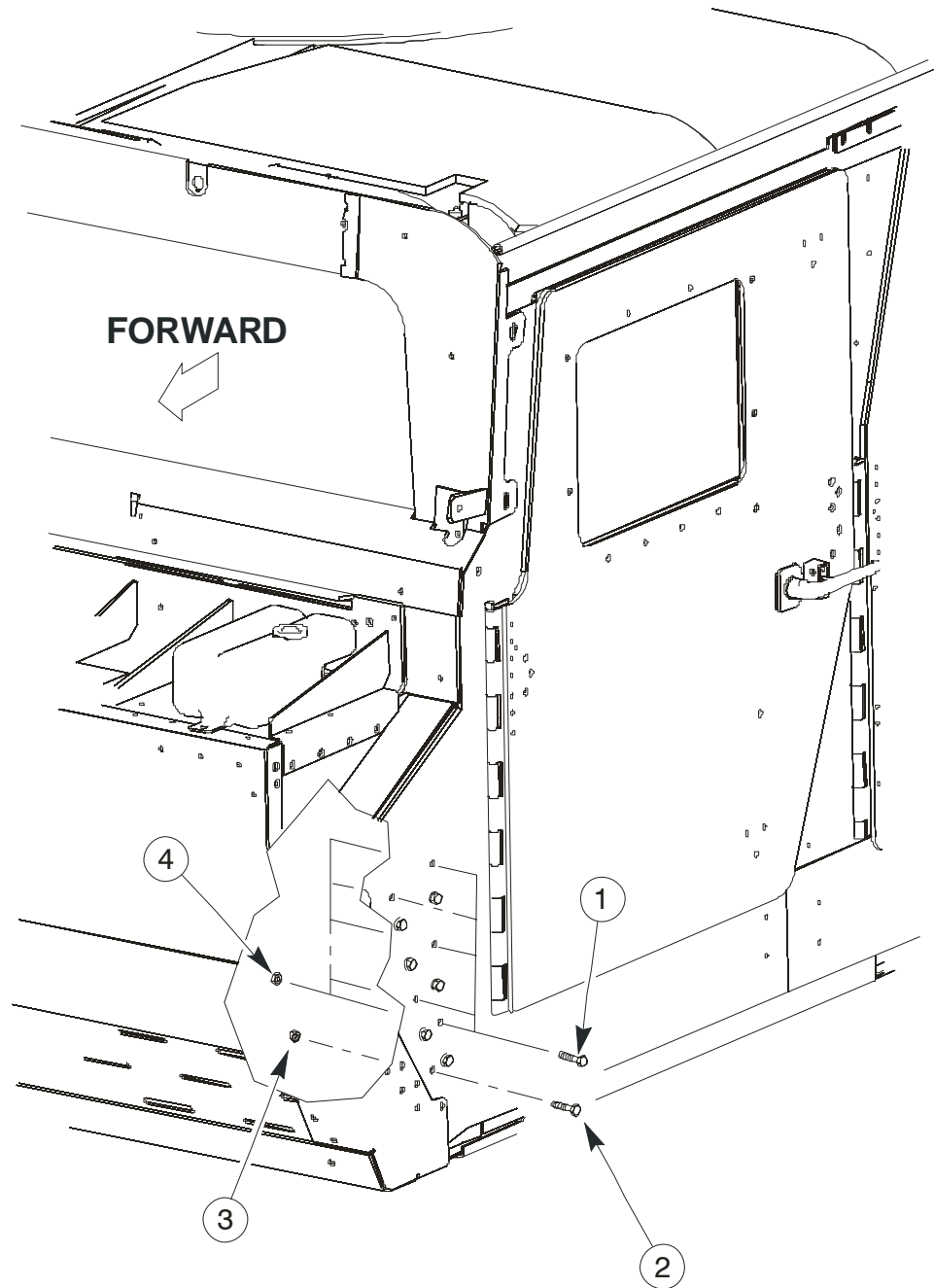


Figure 6.

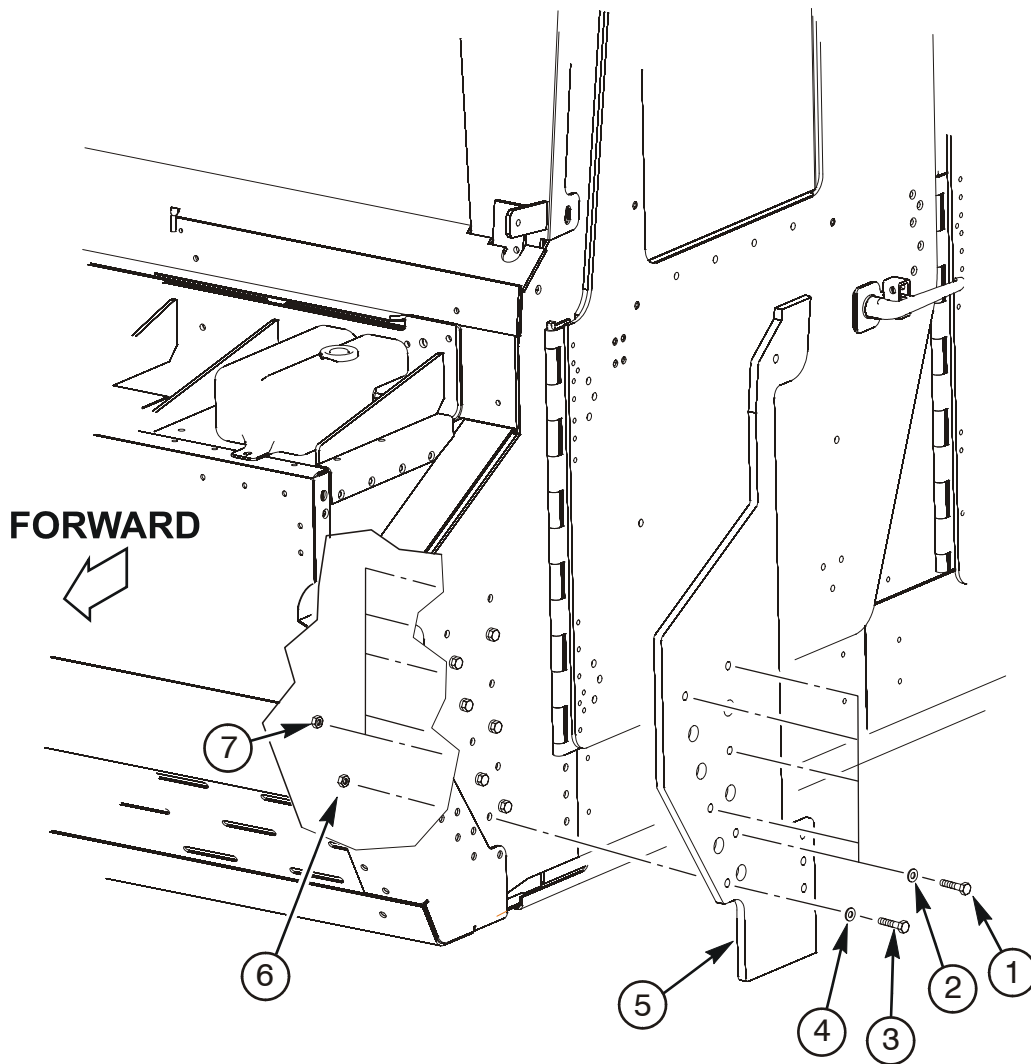


Figure 7

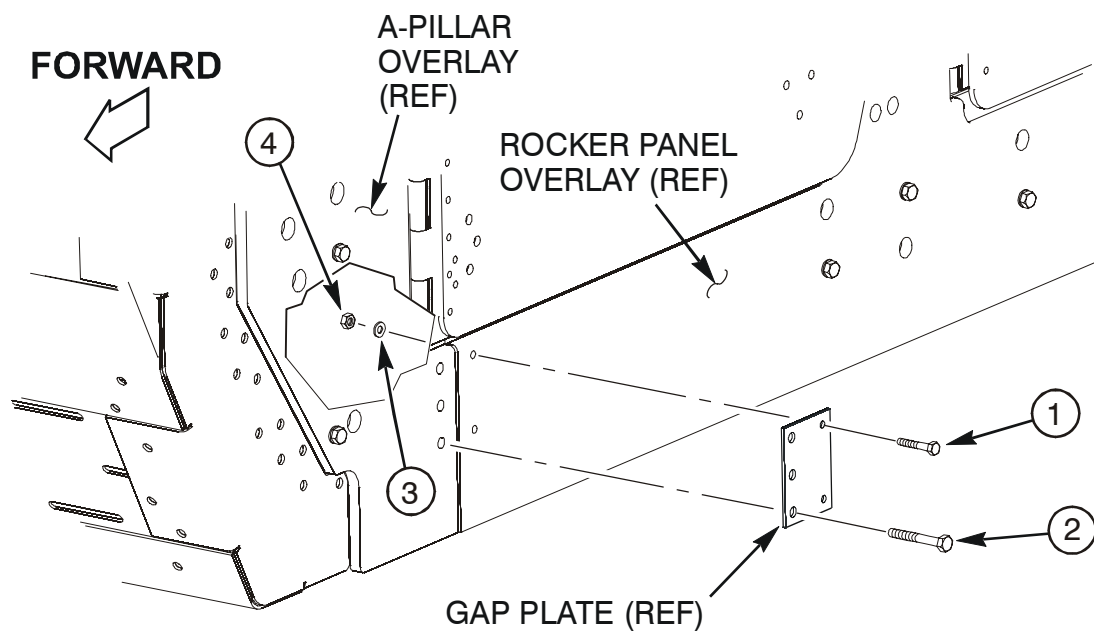


Figure 8.

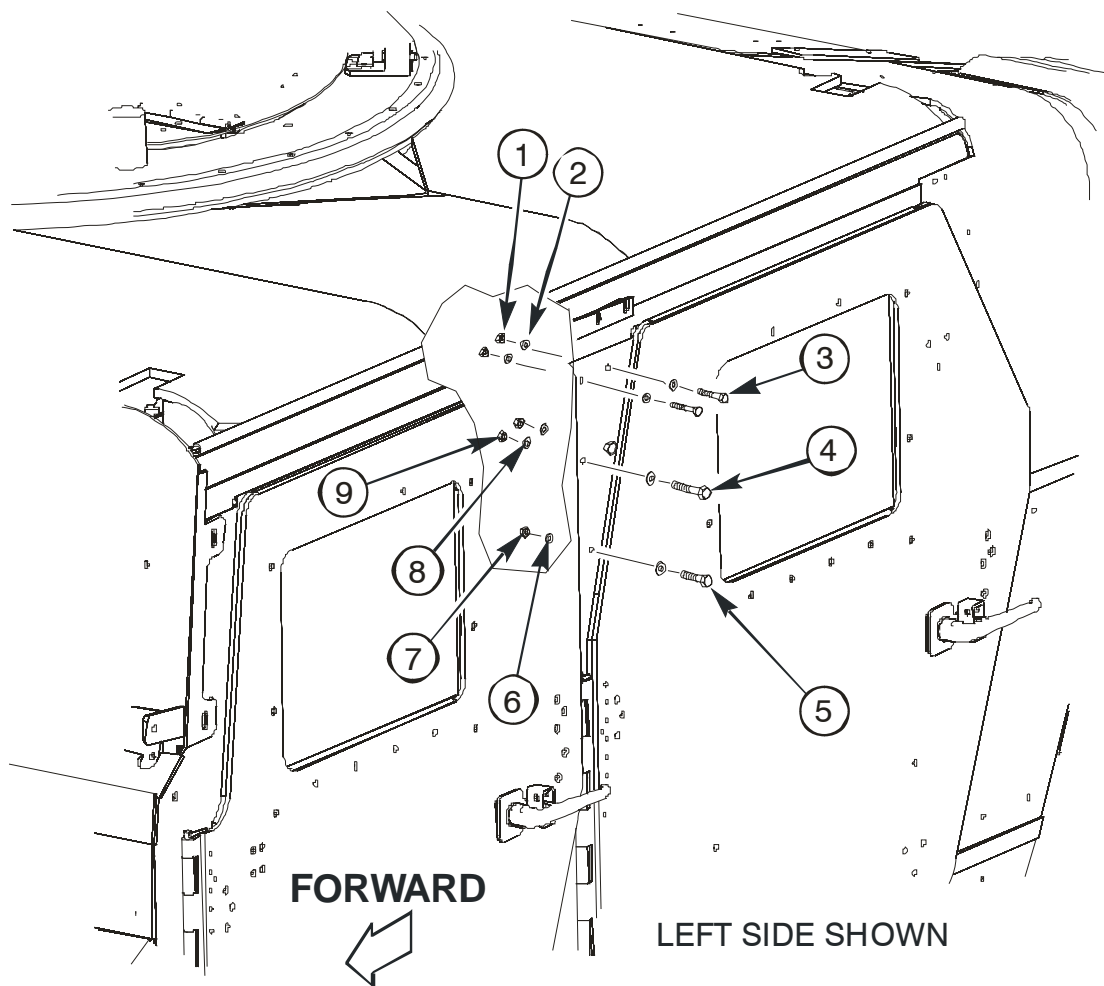


Figure 9.

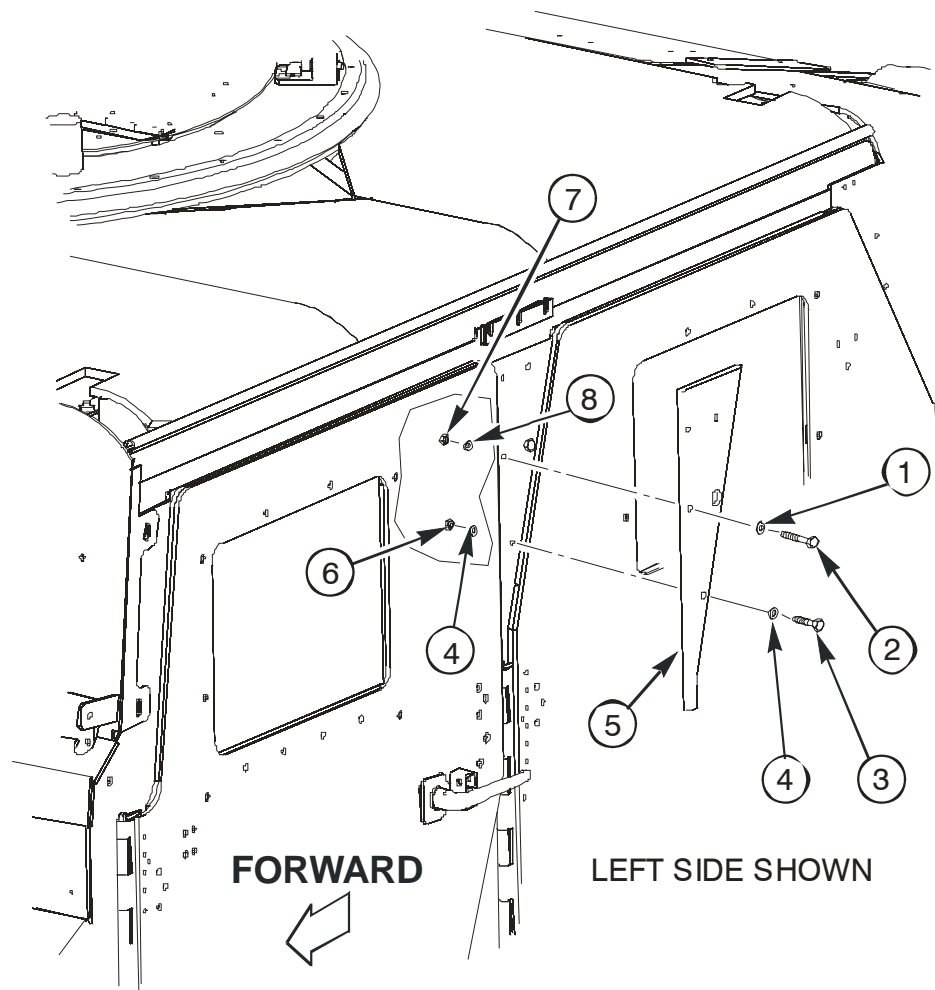


Figure 10.

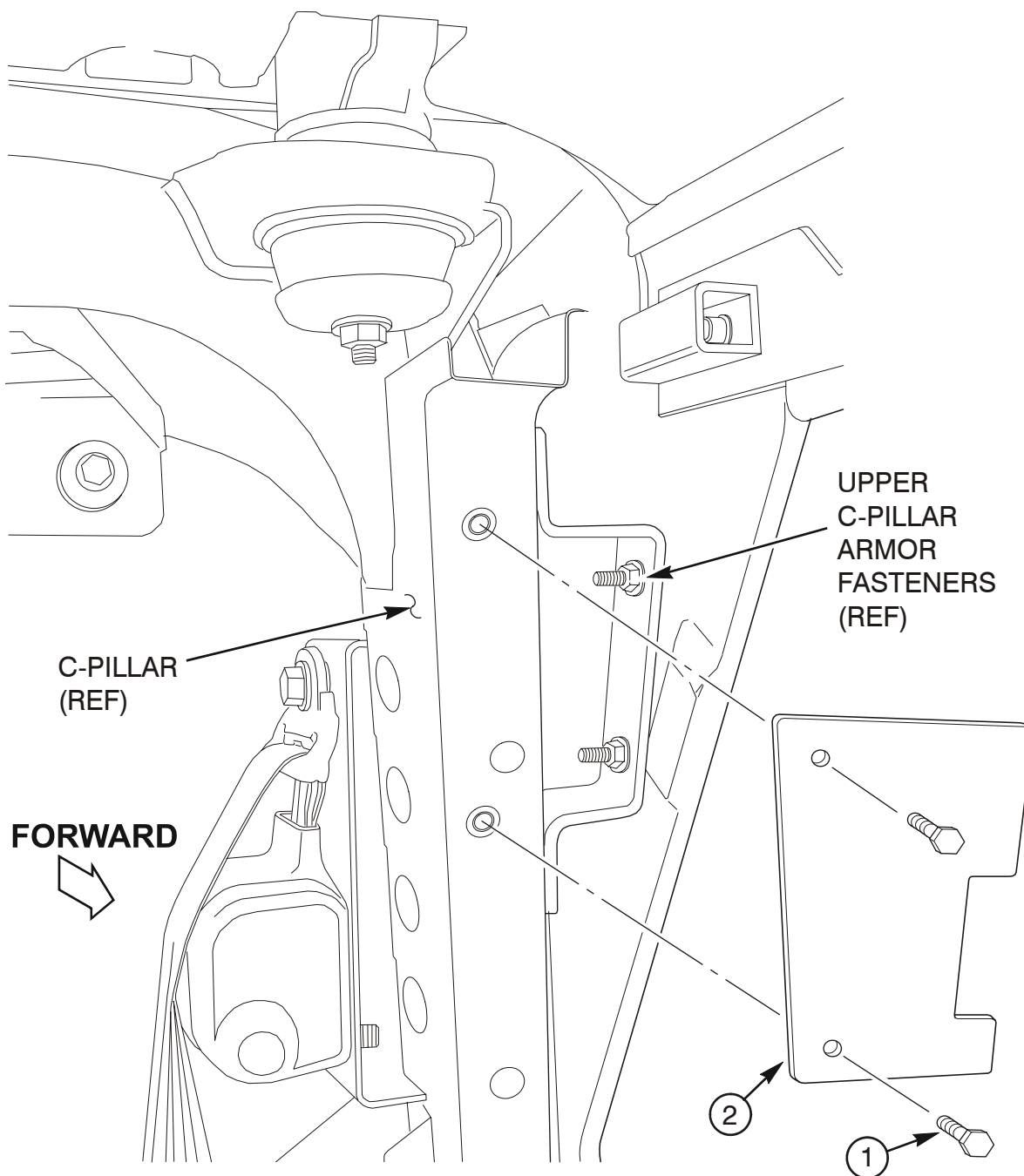


Figure 11.

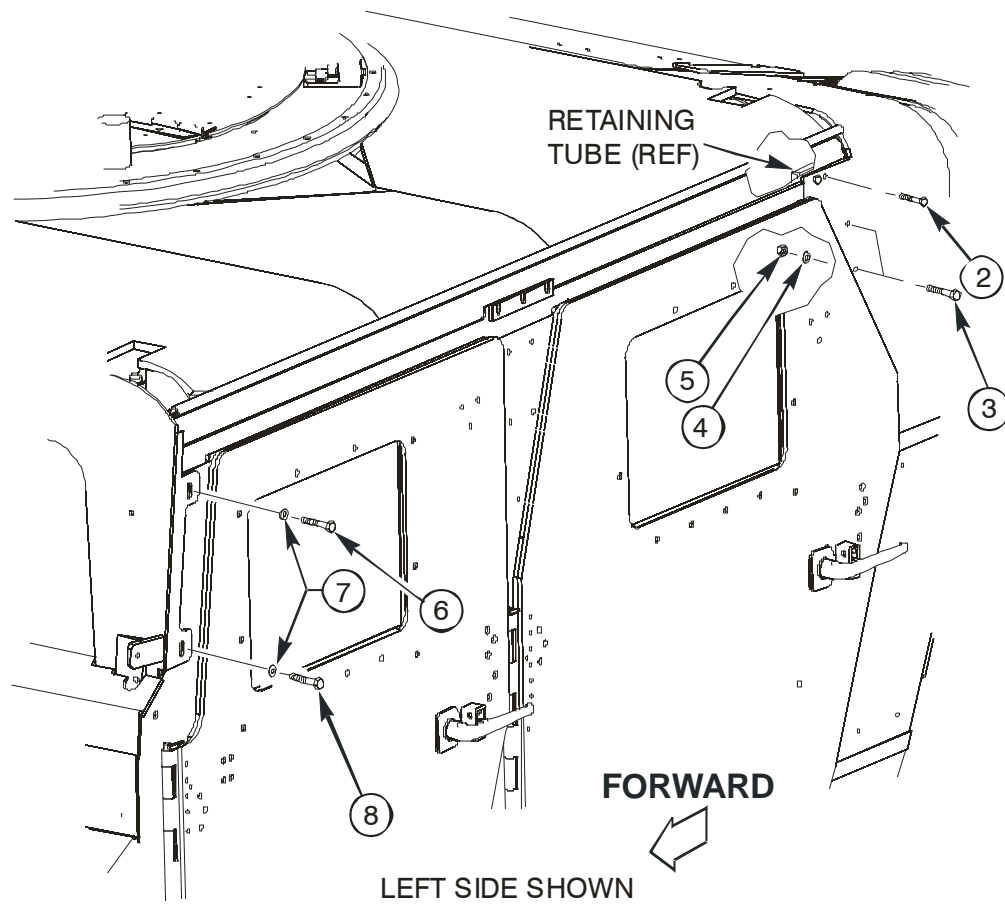
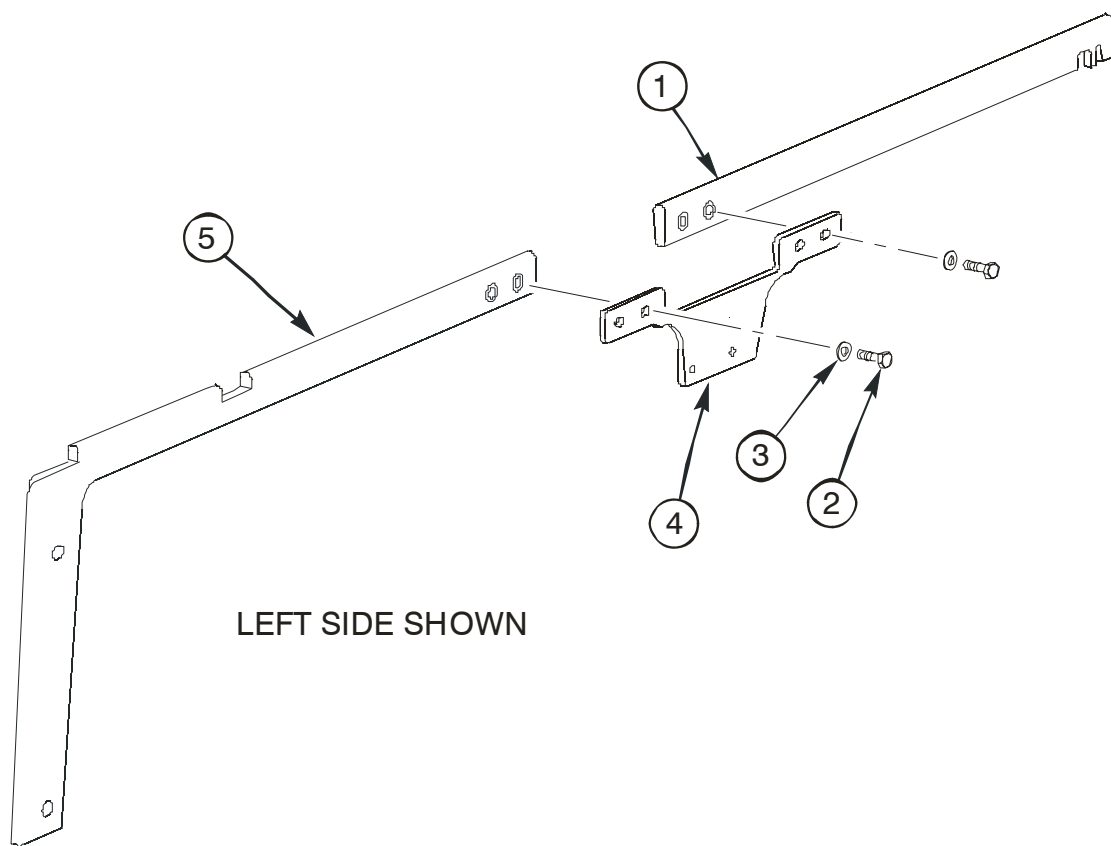


Figure 12.



LEFT SIDE SHOWN

Figure 13.

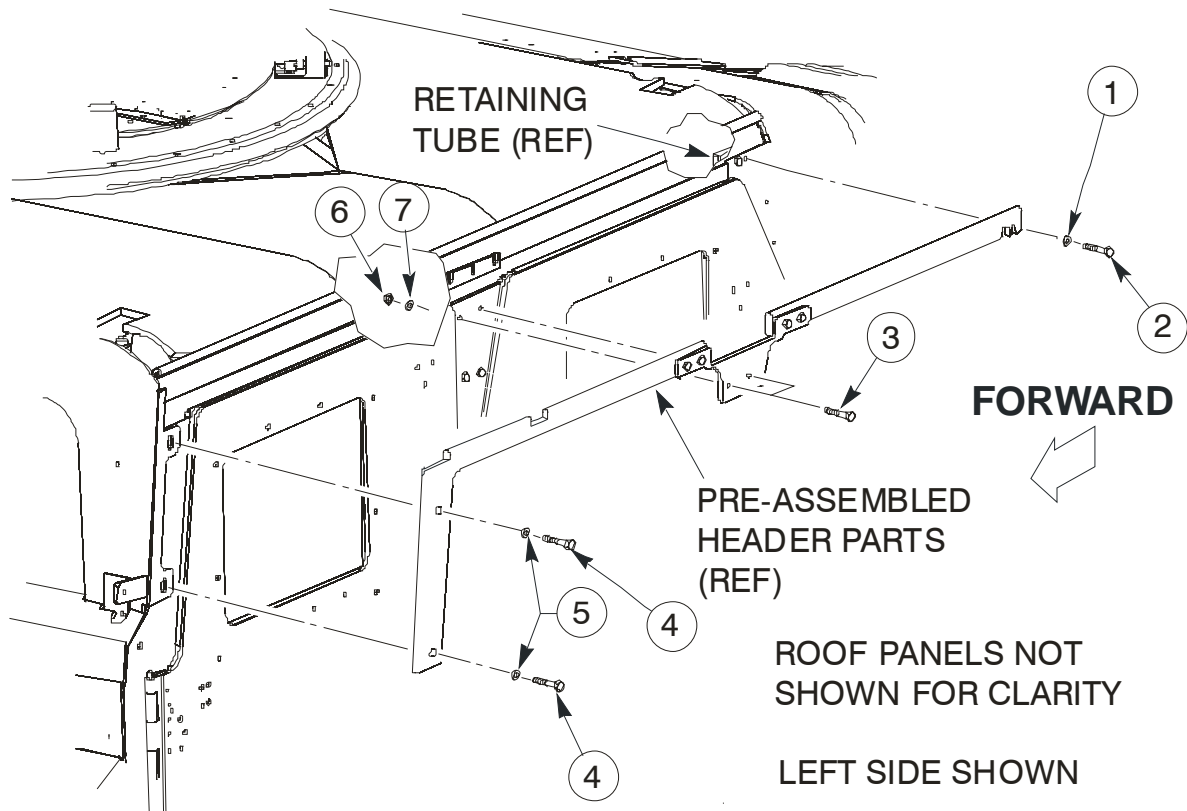


Figure 14.

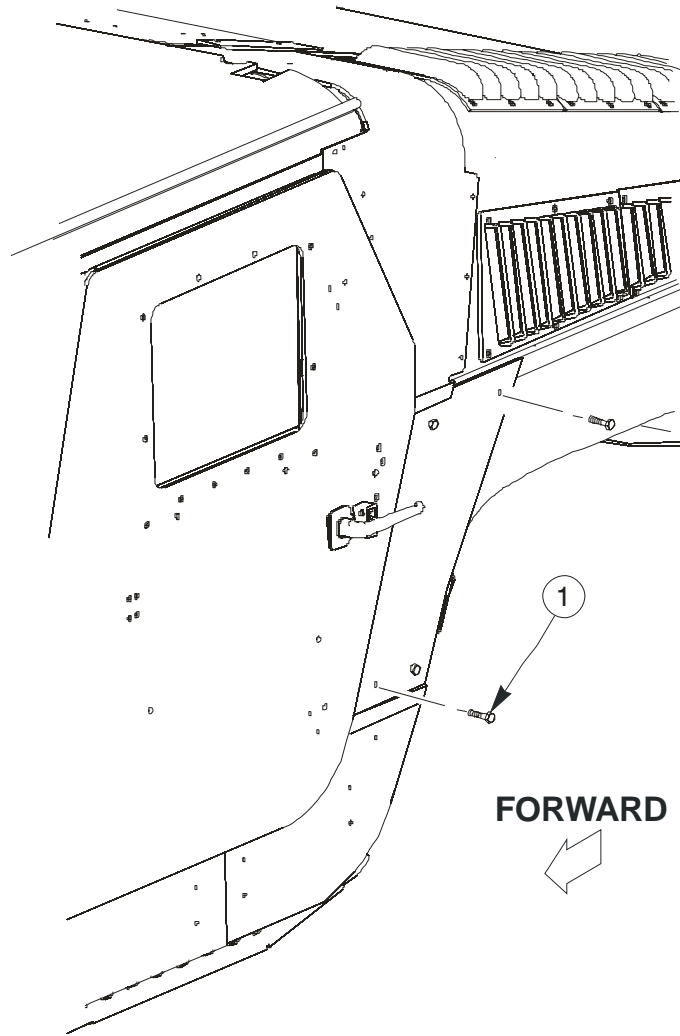


Figure 15.

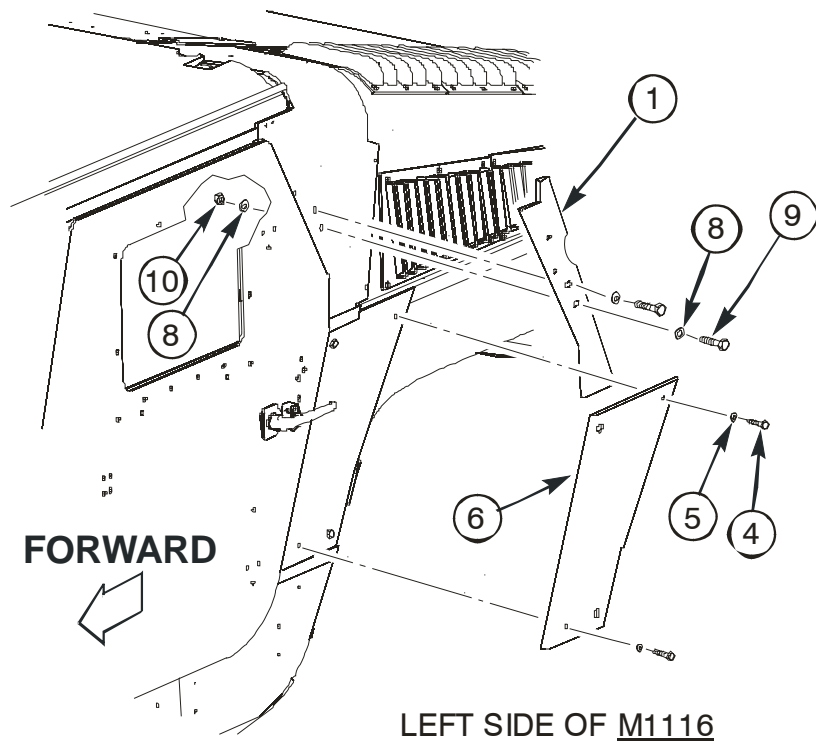
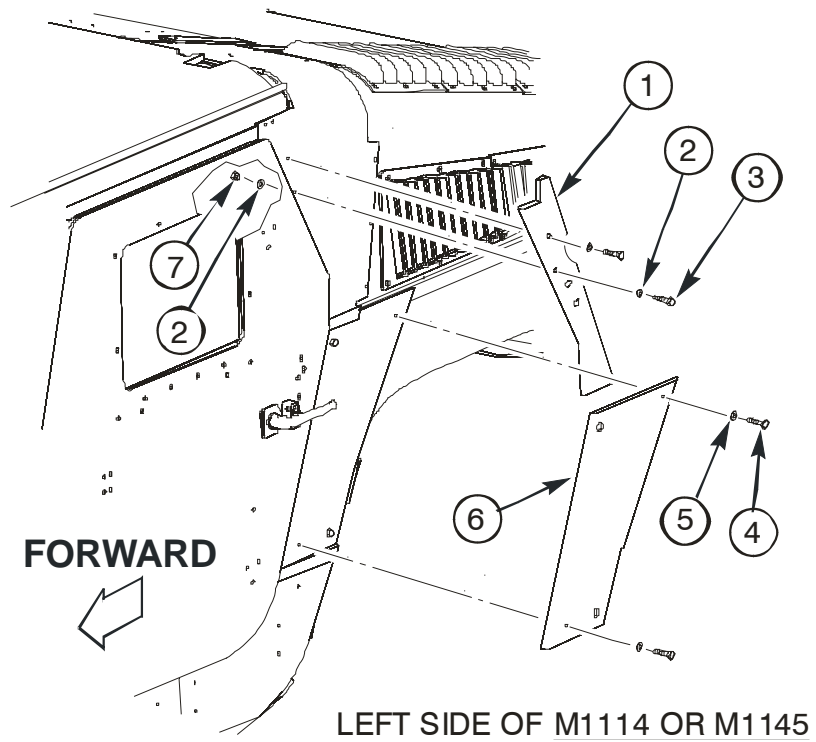


Figure 16.

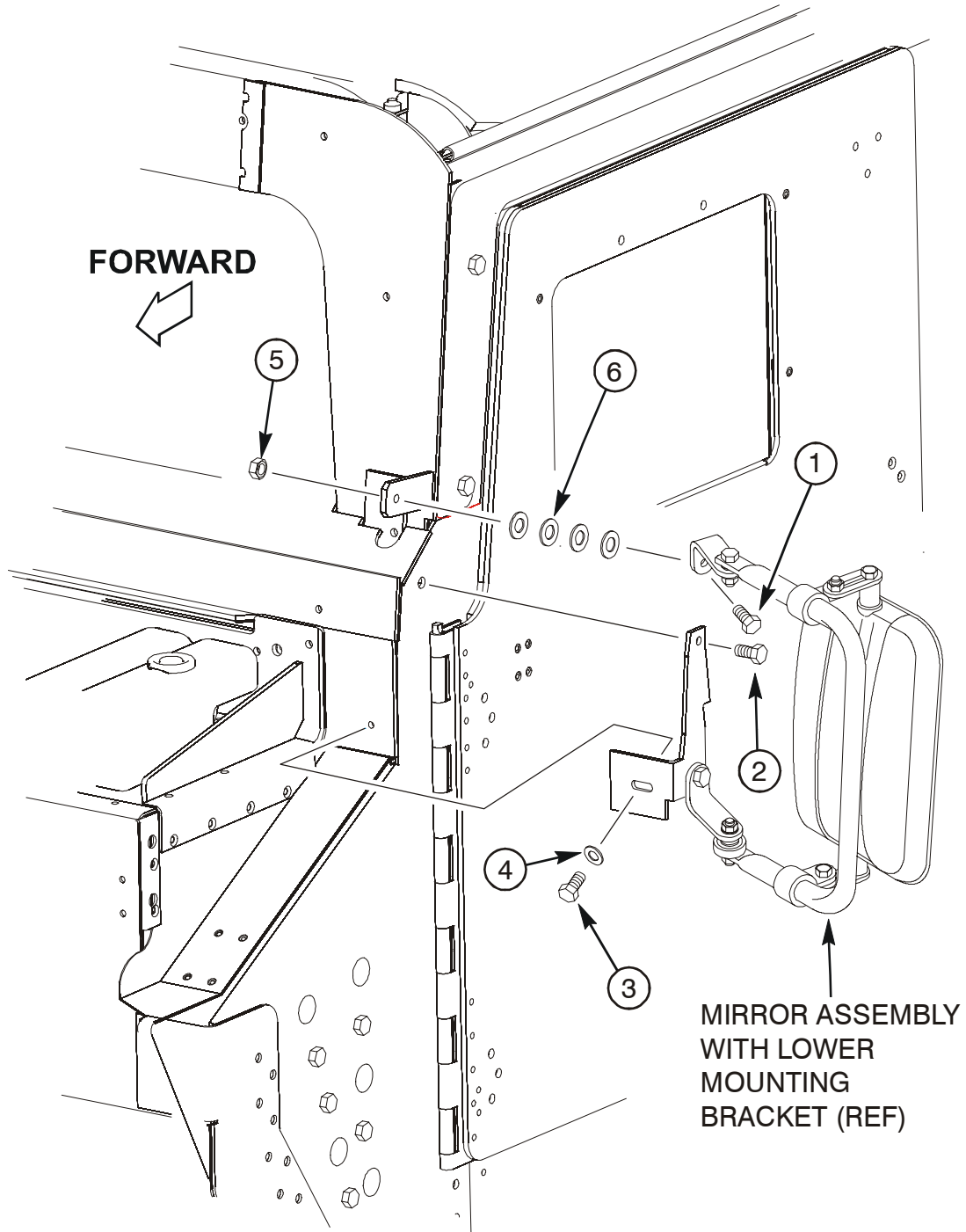


Figure 17.

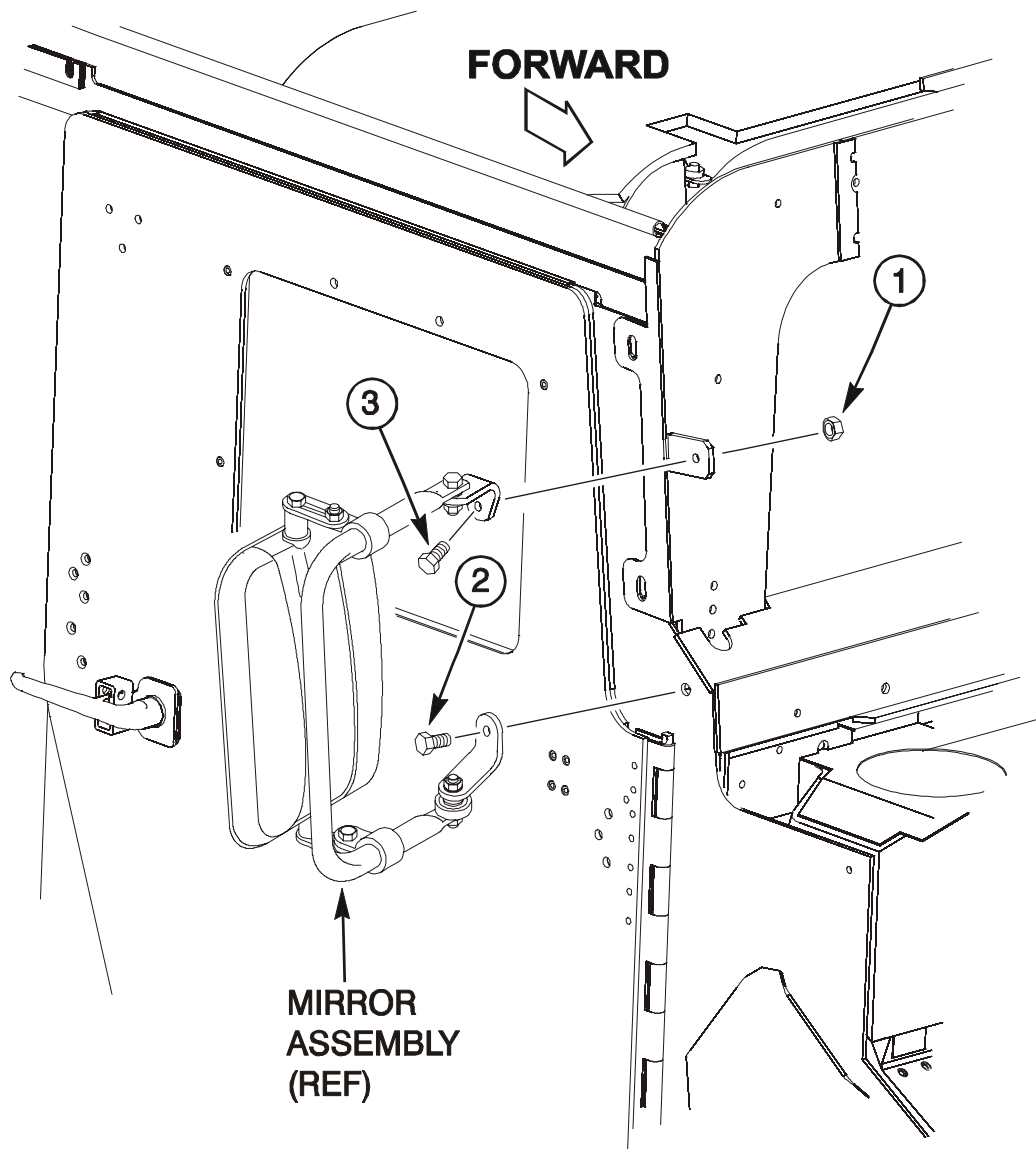


Figure 18.

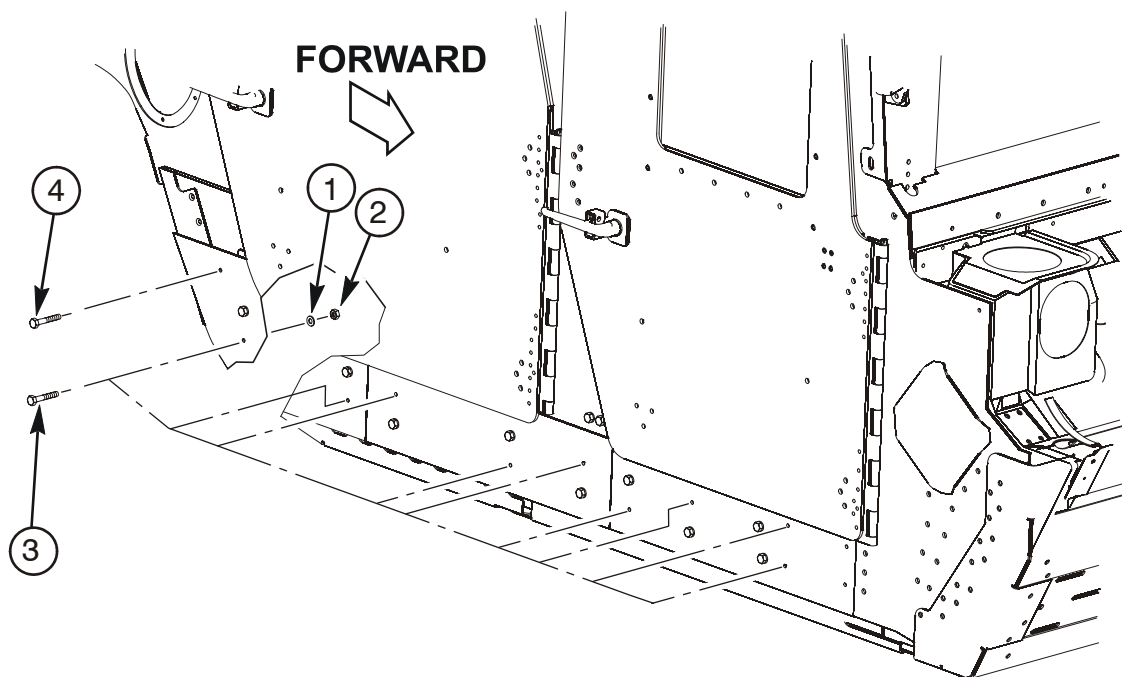


Figure 19.

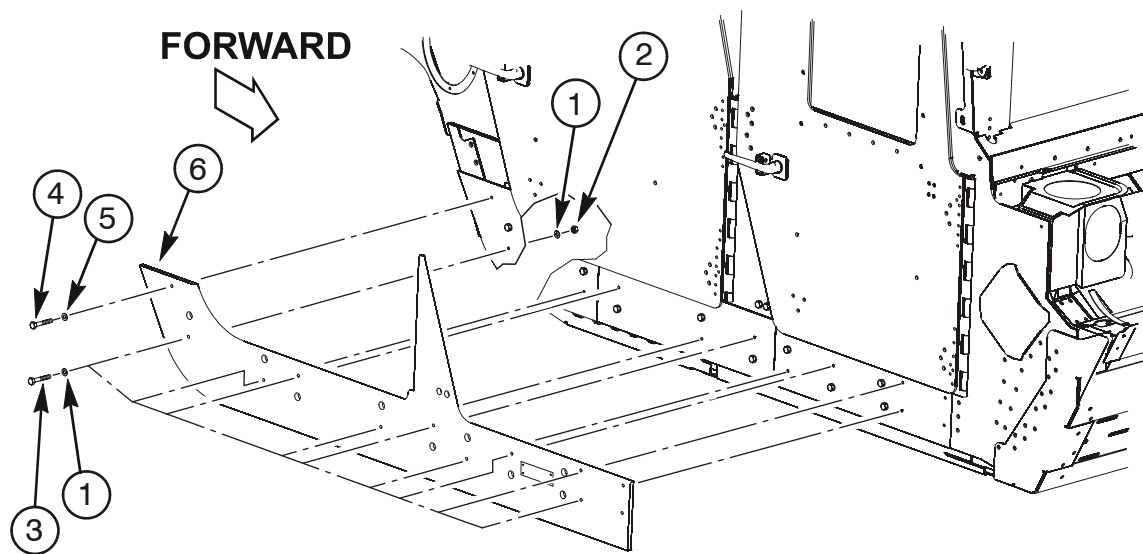


Figure 20.

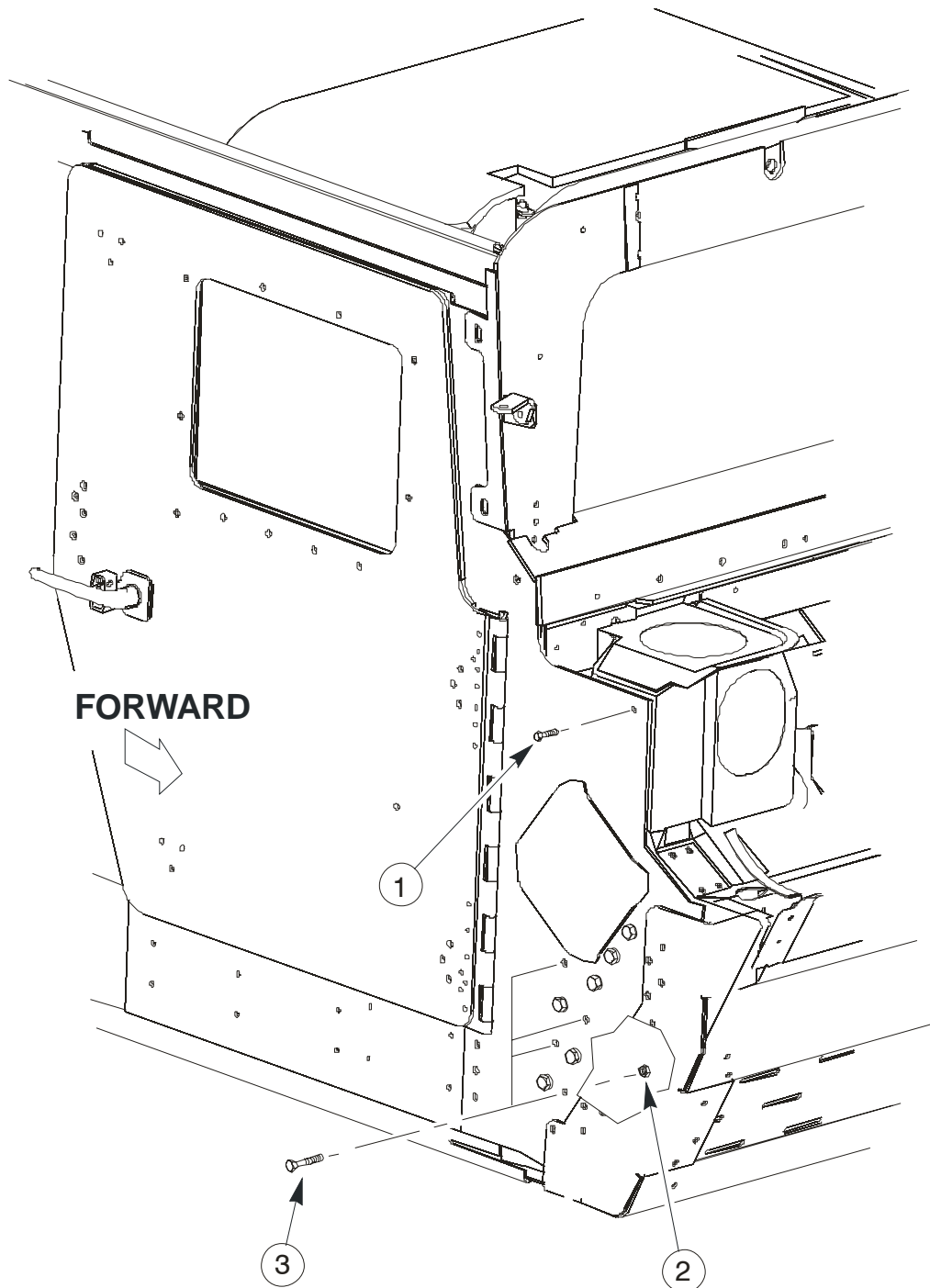


Figure 21.

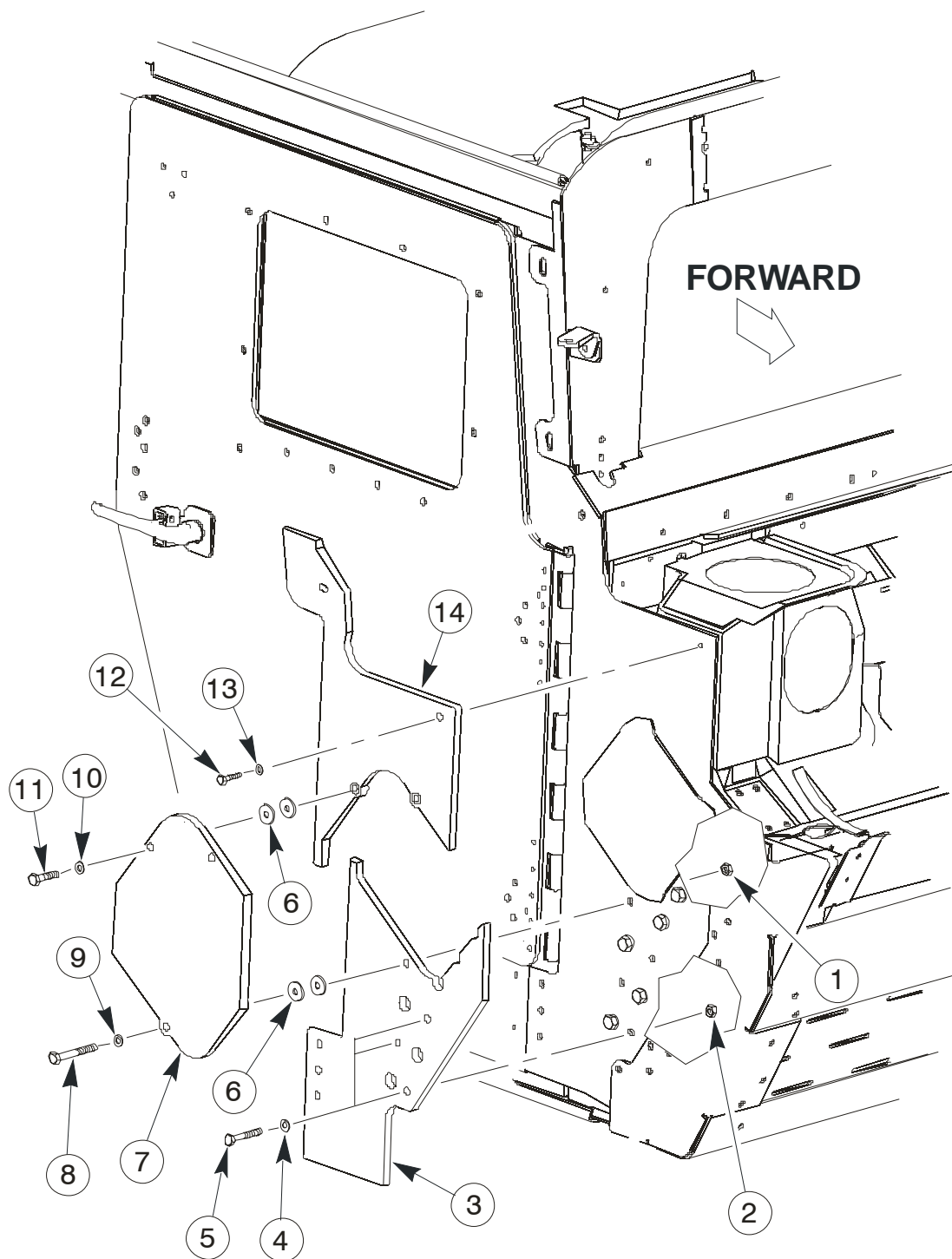


Figure 22.

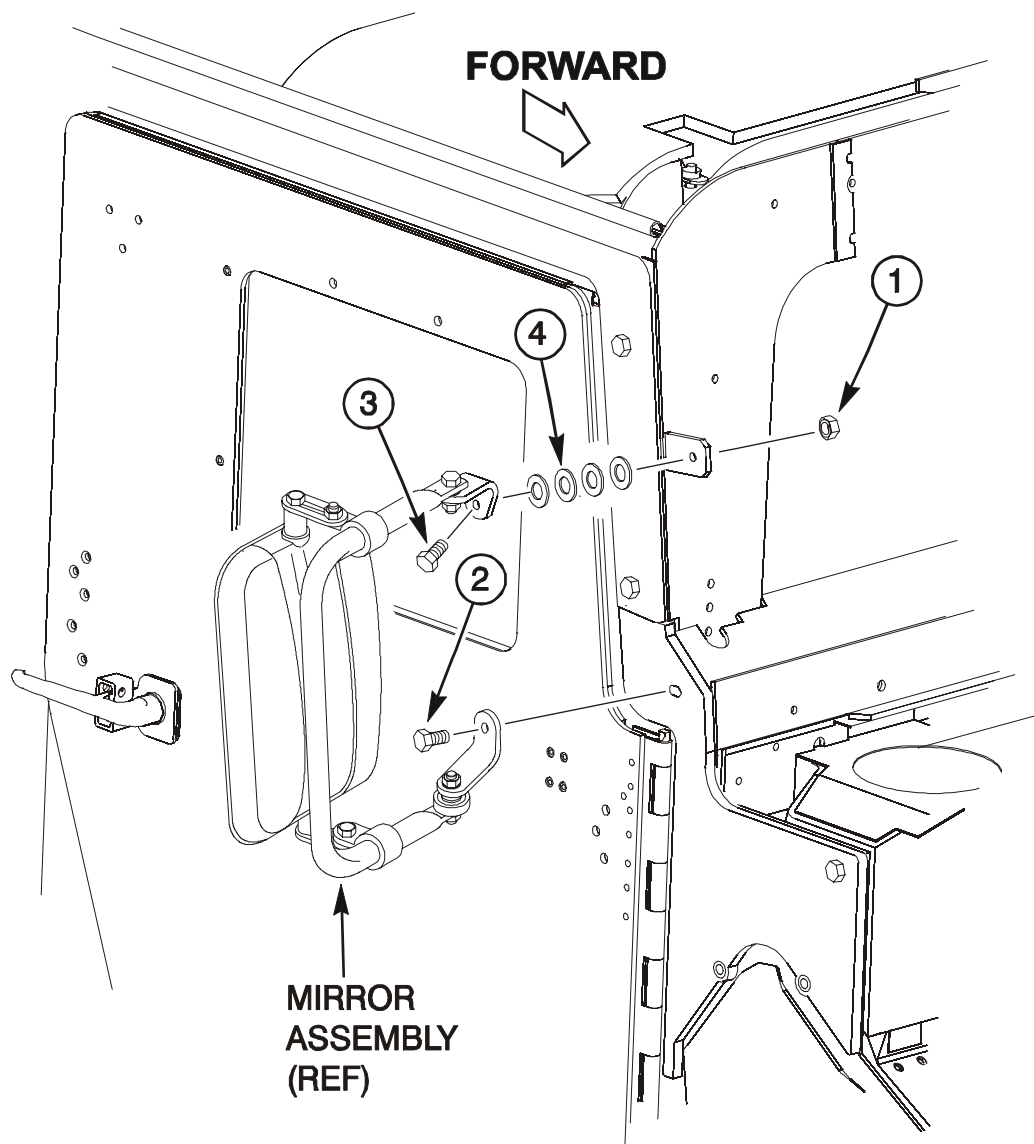


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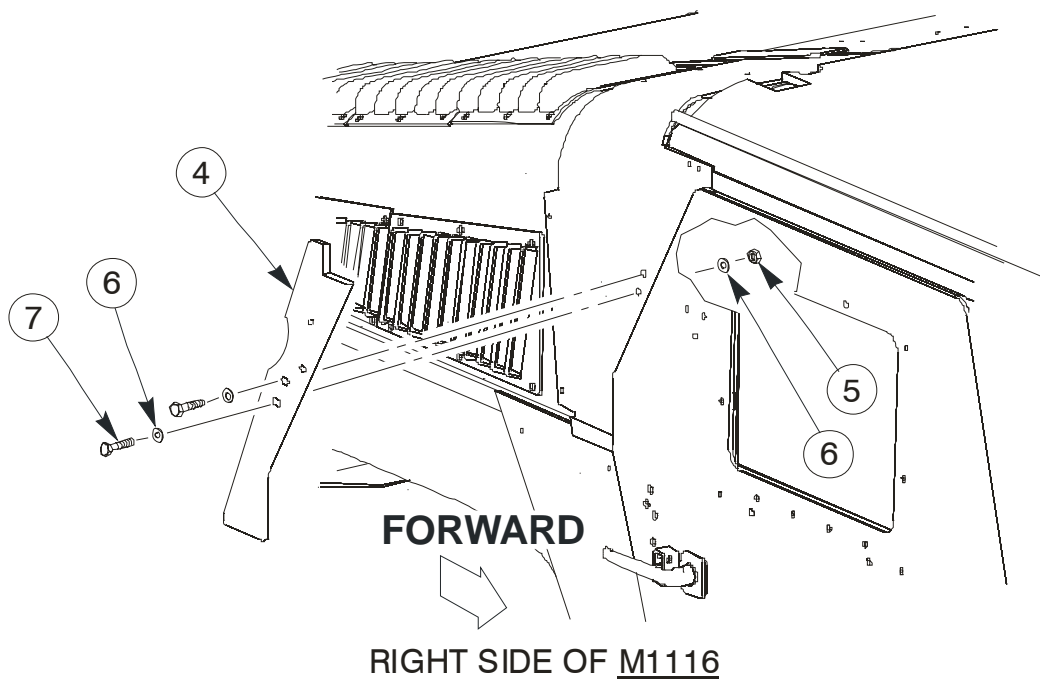
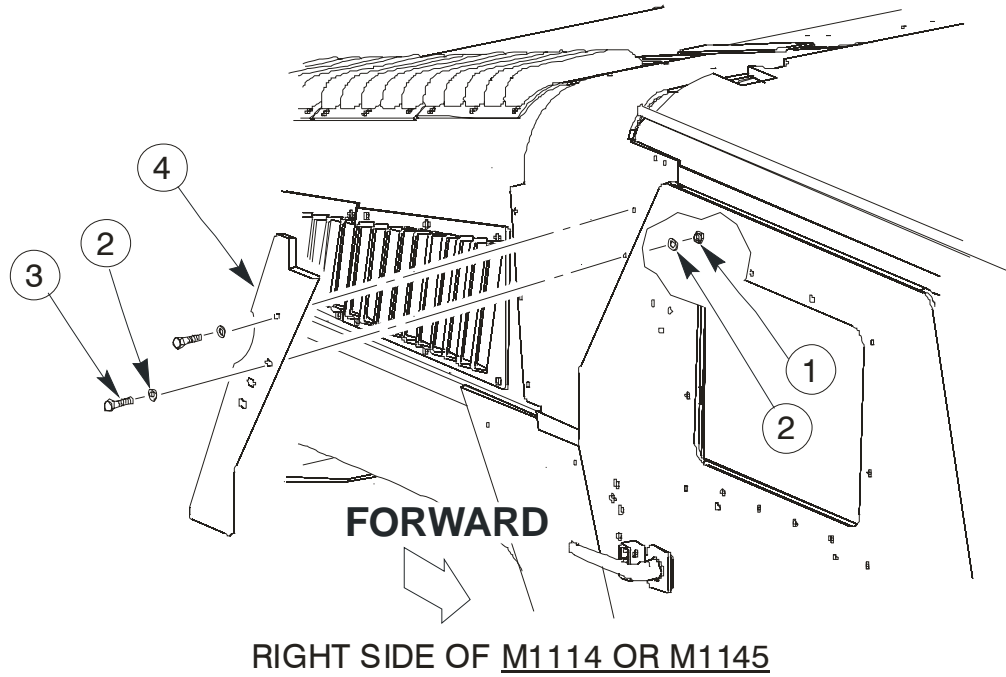


Figure 24.

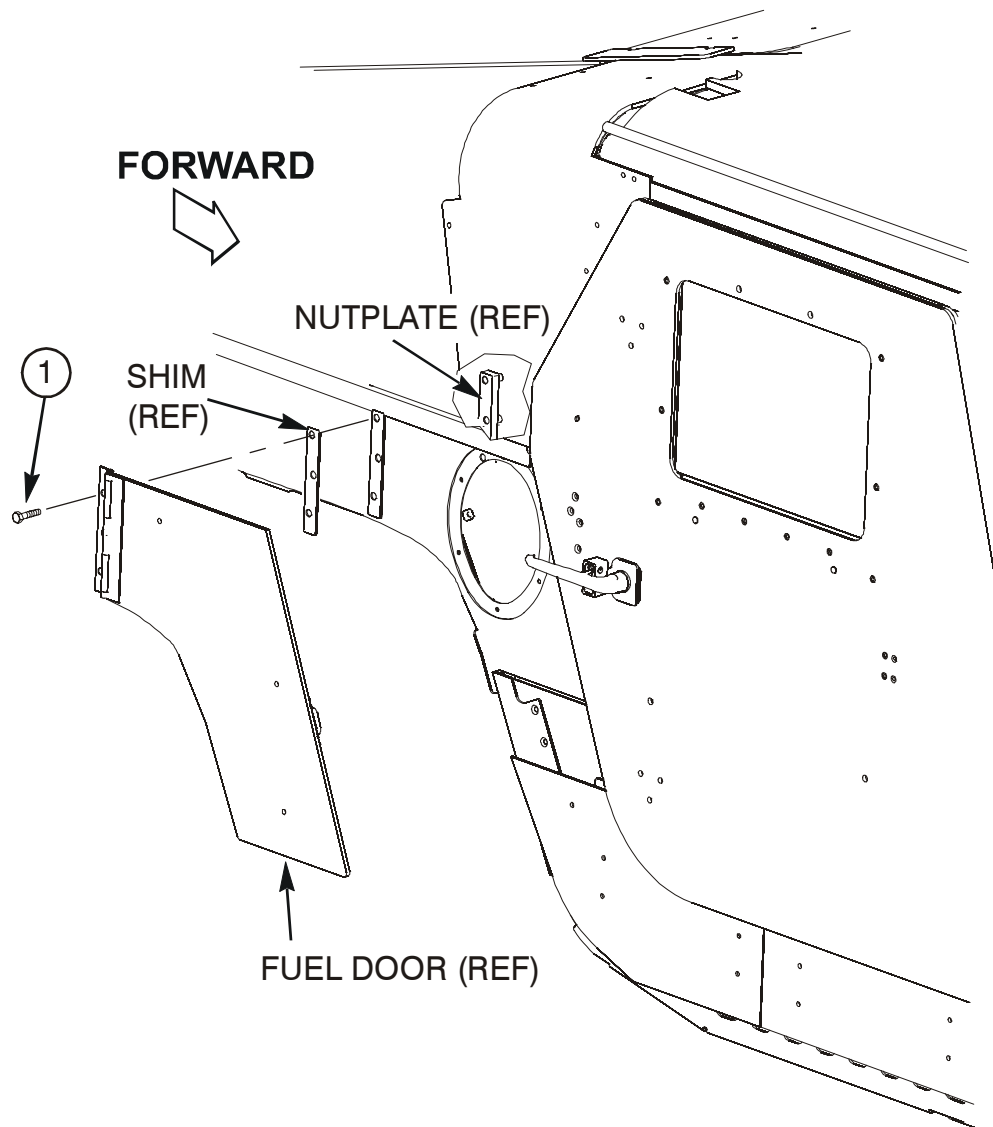


Figure 25.

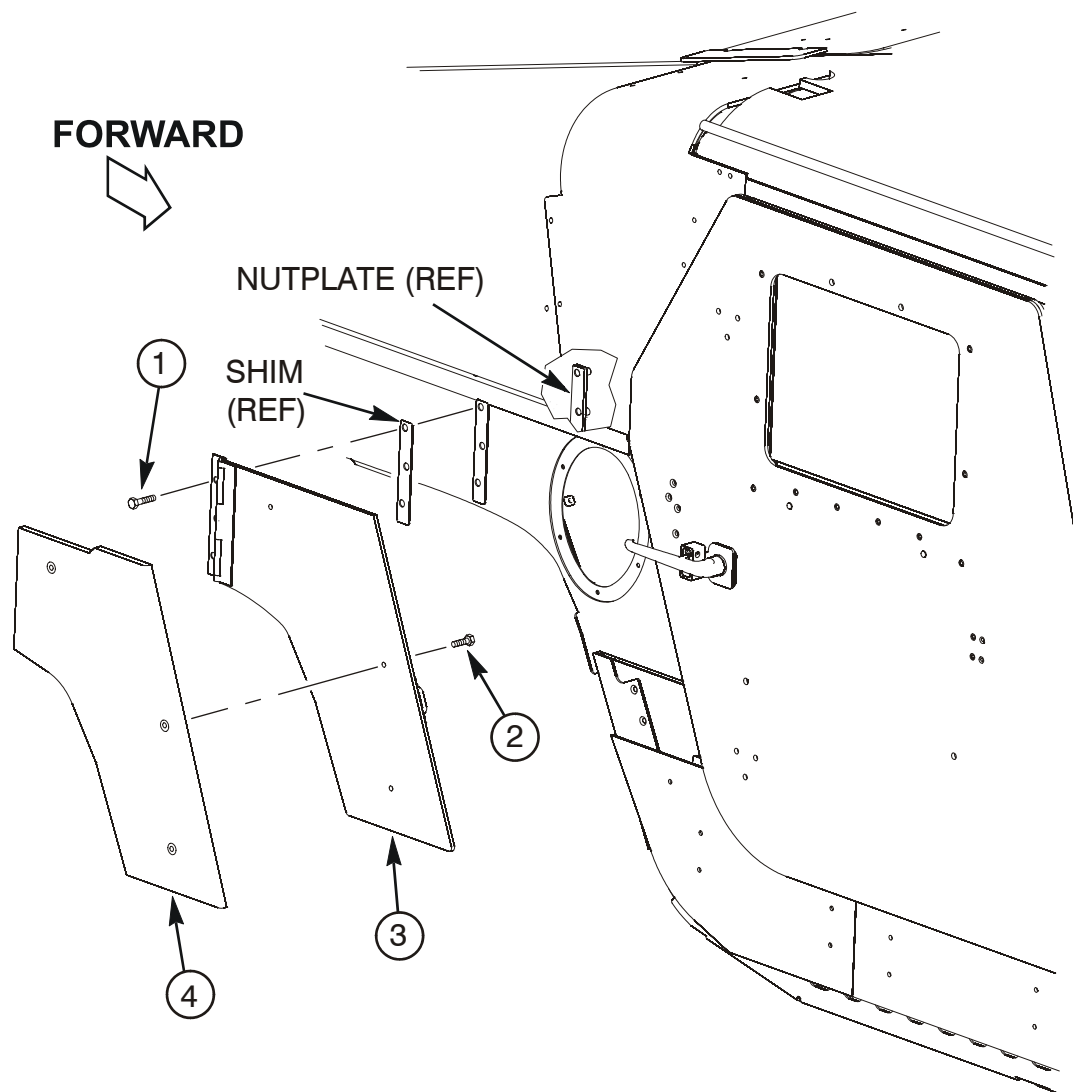


Figure 26.